

Appl. No. 09/996,834
Amdt. dated 01/29/2004
Reply to 01/09/2004 Office action

REMARKS

This is in response to the Office action dated 01/09/2004 rejecting claims 1- 40. On January 28, 2004 the Examiner and the Applicant had a telephonic interview during which claim 1 was discussed and the 102 rejection of claim 1 under Hoshiyama was discussed. The Examiner agreed that the Applicant's argument was reasonable that the "characteristic" of claim 1 was not taught or met by a single element in Hoshiyama, subject to a further search. The Examiner and the Applicant agreed that the Applicant would rewrite the argument in a response so that the Examiner could then act upon the response. The summary of the arguments presented by the Applicant are written below.

Claim 1 claims a "characteristic" element, which has at least two claimed limitations. The first claimed limitation is that the "characteristic" has "a known value," see claim 1, line a. The second claimed limitation is that the "characteristic" is "measur[ed]" in the image, see claim 1, line c. Therefore, in claim 1, the element (i.e. "characteristic") has both a "known value" is also the element being "measur[ed]" in the image.

In contrast, Hoshiyama does not have one element that has both a "known value" and is also the element being "measur[ed]" in the image. Instead, Hoshiyama discloses marks 41 which have a "known value" and a separate element, the apertures 21, 22 that are being "measur[ed]". Hoshiyama lacks one element with both the limitations of the "characteristic" of claim 1.

First, Hoshiyama discloses two elements, one, the marks 41 on the scale plate 4 have a "known value", see Fig. 1B, and two, the apertures 21, 22 on the article 2 are being "measur[ed]", see Fig 1E. The fact that the marks 41 of the scale plate 4 and the apertures 21, 22 of the article 2 are separate elements can be seen in Fig. 1A wherein the scale plate 4 is positioned on another plane over an article 2. The fact that the marks 41 of the scale plate 4 and the apertures 21, 22 of the article 2 are separate elements is further described in the text wherein Hoshiyama states "the article 2 is separated on optical axis from the marks 41" col. 4, lines 17 - 18, by a distance equal to " $d = 5$ to 10 mm, when the focus depth of the focusing system of the image sensor units 14 micrometers." col. 4, lines 21 - 23, where

Appl. No. 09/996,834
Amdt. dated 01/29/2004
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d, shown in Fig. 1A, is the distance between the scale pate 4 and the article 2. Also, the text further describes that the marks 41 and the apertures 21, 22 are separate elements by stating that the marks 41 and the apertures 21, 22 are "focused separately", col. 4, lines 29, also described as detected "selectively and successively", see the abstract. Thus, the apertures 21, 22 on the article 2 (i.e. predetermined portion of the article 2, see abstract) are different elements than the marks 41 on the scale 4.

Second, in Hoshiyama the apertures 21, 22 are the elements being "measur[ed]", but unlike the "characteristic" of claim 1, the apertures 21, 22 of Hoshiyama are not both "measur[ed]" and have a "known value". Thus, the apertures 21, 22 do not meet the "characteristic" of claim 1.

Third, returning to the marks 41 in Hoshiyama, the marks 41 are a separate element that has a "known value", but unlike the "characteristic" of claim 1, the marks 41 are not both "measur[ed]" and have a "known value". Thus, the marks 41 do not meet the "characteristic" of claim 1.

Neither the marks 41 or the apertures 21, 22 nor any other element of Hoshiyama meet the limitations of the "characteristic" of claim 1. Therefore, Hoshiyama cannot be said to anticipate claim 1.

Also, in the interview the invention was discussed generally. Specifically, the Applicant explained one example in the specification, where the diameter of a fiber optic cable is the characteristic. In this example the diameter of the fiber optic cable is known, and the diameter of the cable is also measured in an image and used to calculate the scale relationship. In the field, where the cable is imaged, see Figs. 9 and 10, the diameter of the cable is known, but the distance from the camera to the cable is not certain. Therefore the scale relationship is uncertain, thus, sometimes marks on the image of the cable cannot be evaluated with certainty until, as claimed, the value of the diameter of the cable in the image is measured and used in conjunction with the known value of the diameter of the cable to determine the scale relationship. Thereafter, the size of any marks on the image of the cable can be determined with certainty.

Also, the Applicant stated in the interview that the previous amendments to claims 1, 8, 13, 20, 27 and 31, which were made to clarify that the characteristic was in the image, would be removed by this response because they were not necessary to define over

Appl. No. 09/996,834
Amdt. dated 01/29/2004
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Hoshiyama. Further, the amendments misdirected the review of the claims. By removing the "clarifying" amendment the independent claims were returned to their original form, except for claim 31 which also contained an informality amendment.

Lastly, some of the summaries included in the first response are repeated below for convenience, after the summaries were modified for the current claim amendments.

Hoshiyama discloses a method for calculating the dimensions of an article 2, by using an interesting physical set-up whereby, the article 2 to be measured is positioned on one plane, and a scale plate 4, i.e. a calibration plate, is positioned on another plane under or over the article 2. Then, the article 2 is imaged by the CCD separately from the scale plate 4, see Hoshiyama, abstract, lines 6 - 7 and col. 4, lines 37 - 41. Because of the relative positioning between the two, i.e. the article 2 and the scale plate 4, the article 2 can be measured using the marks 41 on the scale plate 4, where the dimensions of the marks 41 on the scale plate 4 are known.

With regard to claim 1, claim 1 calculates a scale relationship for an imaging system by imaging a characteristic with a known value and measuring the same characteristic in the image to provide a measured value, where the scale relationship is calculated from the known value and the measured value.

Comparing claim 1 to Hoshiyama, in claim 1, the characteristic has a known value. In Hoshiyama, the marks 41 on the scale plate 4 have a known value. Therefore, for arguments sake, the marks 41 of Hoshiyama are equated with the characteristic of claim 1. However, the marks 41 of Hoshiyama are not being measured. Instead, an item having an unknown value, the aperture 21, 22, is the thing that is being measured in Hoshiyama. In claim 1, the item having the known value is also the item being measured in the image. Contrastingly, in Hoshiyama, the item having the known value 41 is not the same item being measured 21, 22.

In summary, Hoshiyama does not have a characteristic with a known value that is also measured. It does not have an element like the characteristic limitation of claim 1. In view of the above, Applicants' claim 1, is not anticipated by Hoshiyama. Therefore, for the foregoing reason alone, the rejection of claim 1 under 35 USC 102 as being anticipated by Hoshiyama is deemed to be overcome.

Appl. No. 09/996,834
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A further difference is that the item being measured in the image of Hoshiyama, i.e. the aperture 21, 22, is not within the same image as the item having the known value, i.e. the marks 41. Contrastingly, in claim 1, the item being measured in the image, i.e. the characteristic, is within the same image as the item having the known value. In fact it is the same thing.

Thus, not only does Hoshiyama lack the characteristic of amended claim 1, i.e. a single characteristic that is known and measured in an image, Hoshiyama also does not place the item being measured 21, 22 in the same image as the known item 41. Therefore for this additional reason, claim 1 is not anticipated by Hoshiyama and the rejection of claim 1 under 35 USC 102 as being anticipated by Hoshiyama is deemed to be overcome.

Claim 8 recites an analogous apparatus to claim 1. Also, claims 27 and 30 recite a method having the same limitation, i.e. the characteristic is both known and measured in an image. Therefore for the same reasons given above, Hoshiyama does not anticipate claims 8, 27 and 30, and thus, the rejection to claims 8, 27 and 30 under 102(a) as being unpatentable over Hoshiyama are deemed to be overcome.

Independent claims 13 and 20 recite a similar limitation, wherein an aspect of the characteristic is both known and measured in an image. Therefore for analogous reasons to those given above, Hoshiyama does not anticipate claims 13 and 20, and thus, the rejection to claims 13 and 20 under 102(a) as being unpatentable over Hoshiyama are deemed to be overcome.

With regard to claims 2 - 7, 10 - 12, 19, 26, 28 - 30, and 32 - 40, they depend from claims 1, 8, 13, 20, 27 and 31, respectively, and therefore are likewise not anticipated by Hoshiyama. Therefore, the rejections to dependent claims 2 - 7, 10 - 12, 19, 26, 28 - 30, and 32 - 40 under 102(b) as being unpatentable over Hoshiyama are deemed to be overcome.

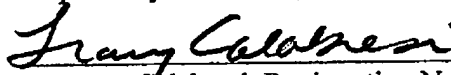
Second, the Office action rejected claims 2, 9, 14 - 18, 21 - 25, and 29 under 35 USC 103 as being unpatentable over Hoshiyama in view of Dar, et al. US Patent No 5,995,212. With regard to claims 2, 9, 14 - 18, 21 - 25, and 29 under 35, they depend from claims 1, 8, 13, 20, and 27, respectively, each of which is deemed allowable under 35 USC 103 over Hoshiyama in view of Dar. Thus, the rejections to dependent claims 2, 9,

Appl. No. 09/996,834
Amdt. dated 01/29/2004
Reply to 01/09/2004 Office action

14 - 18, 21 - 25, and 29 under 35 under 103 over Hoshiyama in view of Dar is deemed to be overcome.

Accordingly, Applicant respectfully requests entry of the above amendment, and respectfully requests allowance of claims 1 - 40. The Examiner is invited to telephone the undersigned attorney to further the prosecution of this application.

Respectfully Submitted,



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